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Thick composite magnetoelectric films by electrophoretic deposition

Original

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Microstructural analysis of $\text{TiO}_2\text{-CoFe}_2\text{O}_4$ film

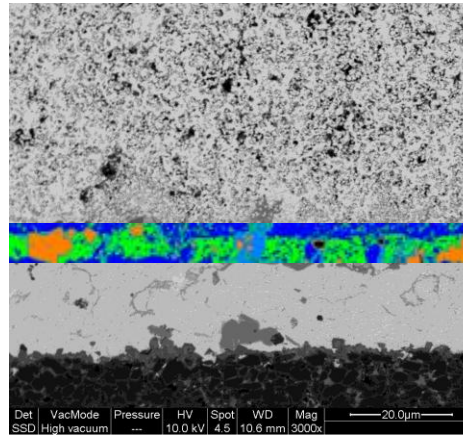
Pietro Galizia*, Davide Gardini, Carlo Baldisserri, Carmen Galassi
CNR - ISTEK (Faenza, Italy)

* Presenting author



EPD to produce nanostructured ME composite bilayers films

➤ Chemical reactions



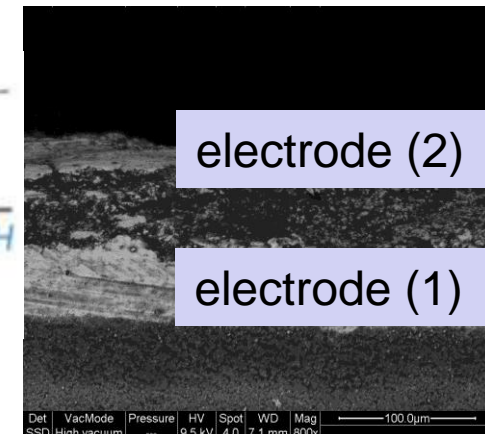
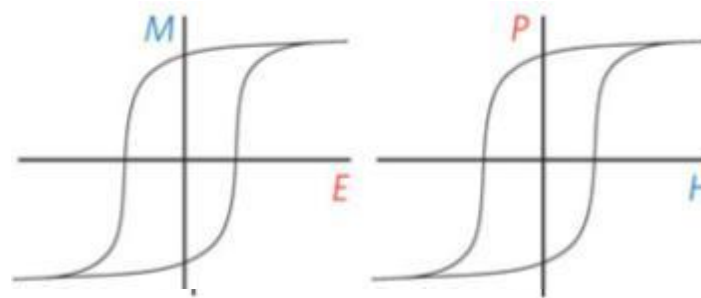
← PZTN

← CFO/TO

← electrode (1)

← Substrate

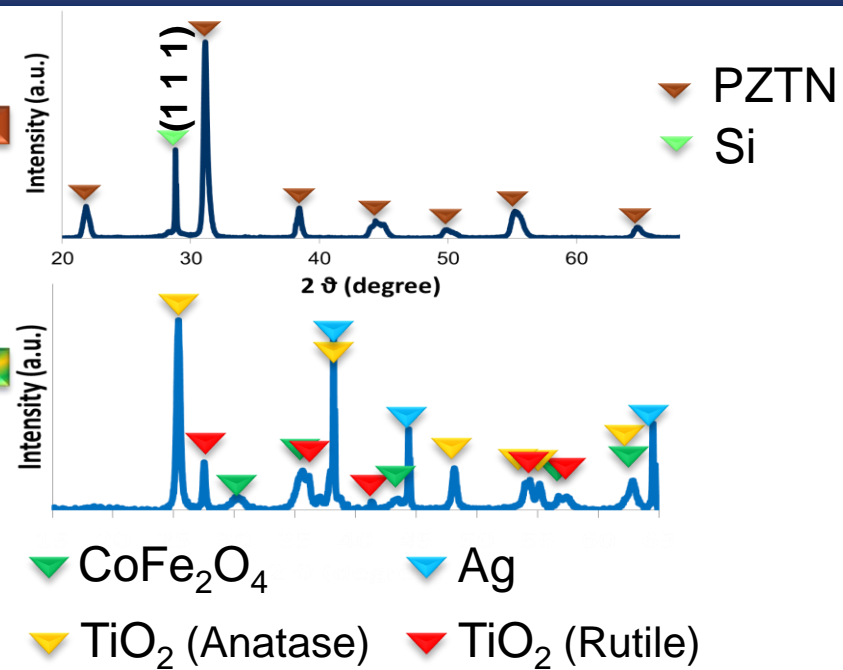
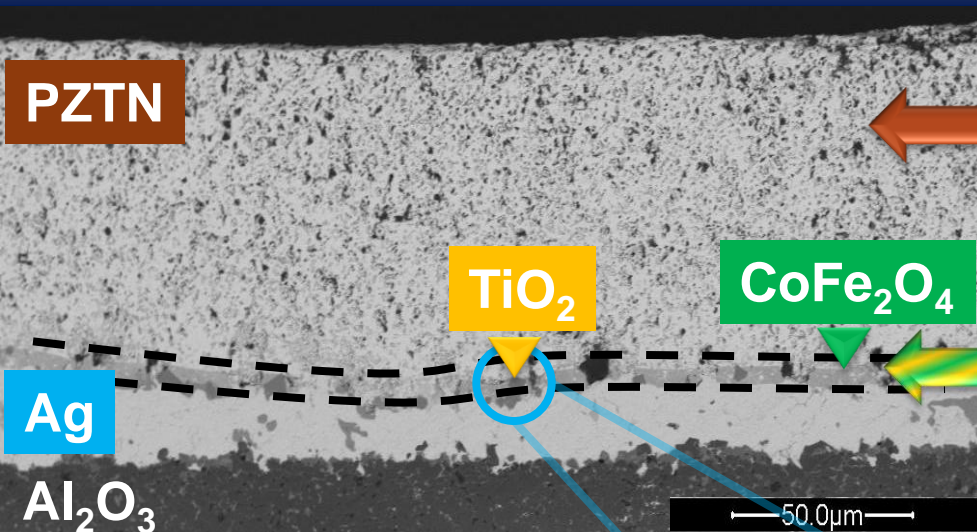
➤ ME coupling effect



electrode (2)

electrode (1)

Results



CFO/TO: 98% relative density; 25vol% TiO₂; 75vol% CFO

PZTN: 95% relative density

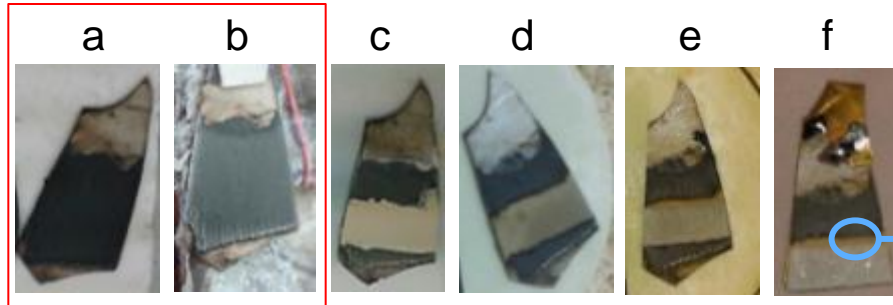
Piezoelectric properties!



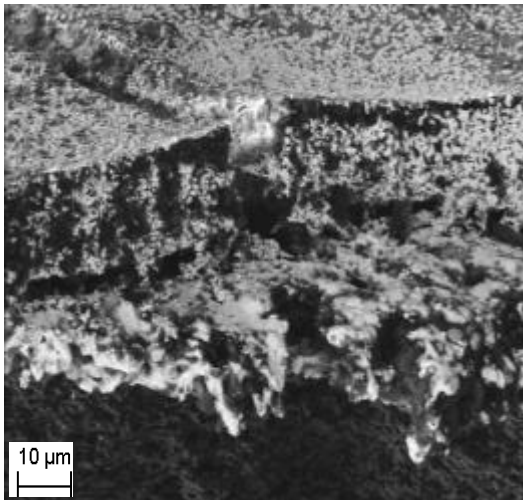
Contribution

- a) Co-deposition **CFO/TO**
- b) Drying and sintering
- c) Deposition **PZTN**
- d) Drying and sintering
- e) Metallization
- f) Poling

Step:

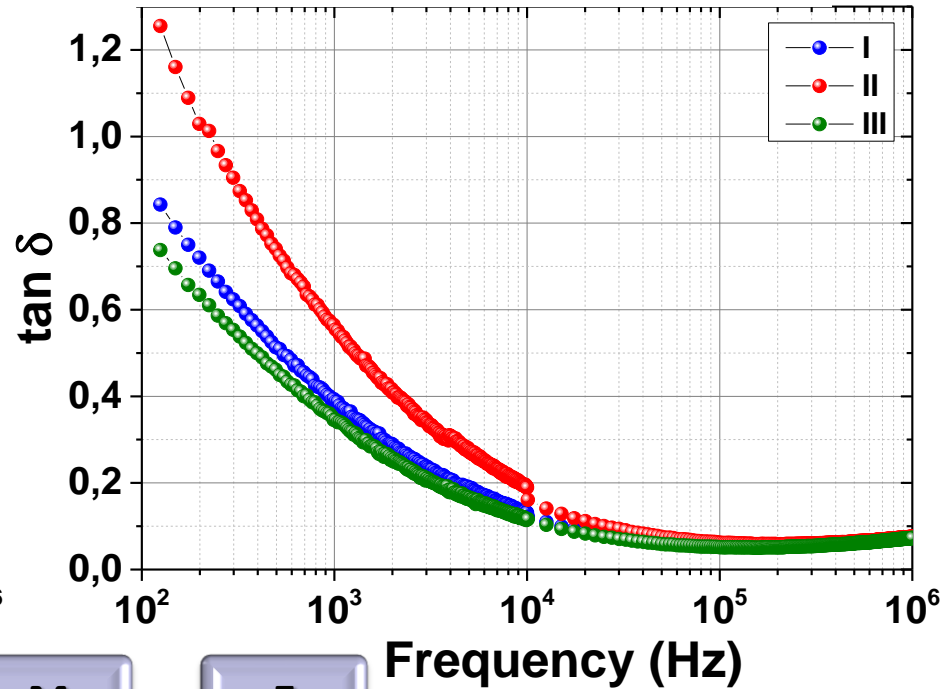
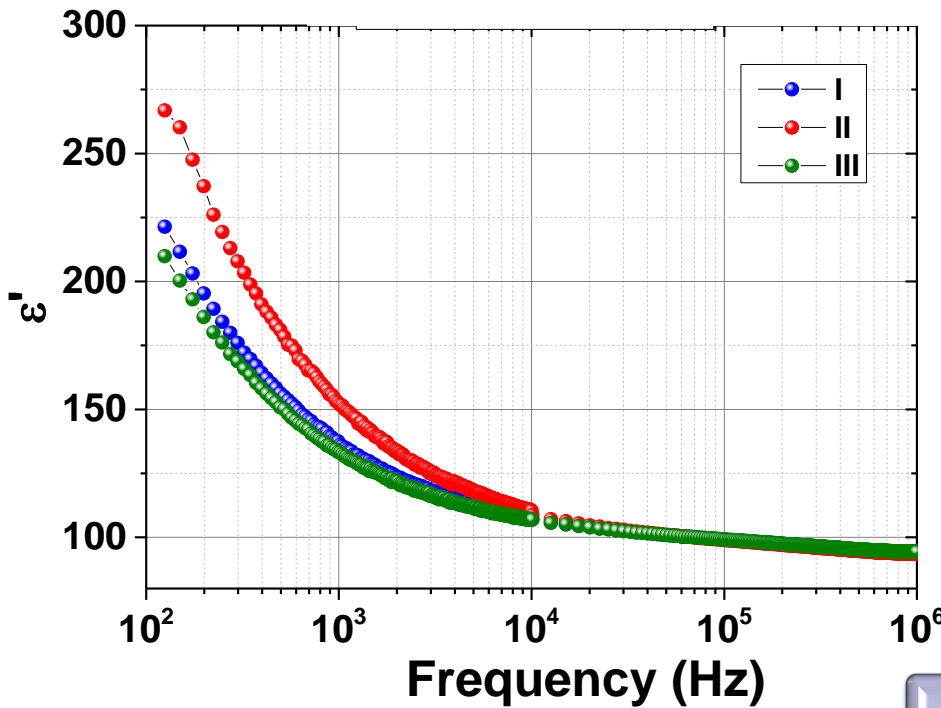


EPD film on Ag-coated alumina
Sintered at 800°C x 1h



**Ag-coated alumina
was used to produce
 CoFe_2O_4 layer
embedded in silver**

Impact



Thank you for your kind attention

